

Agilent Gas Clean Filter System

User Manual



Agilent Technologies

Notices

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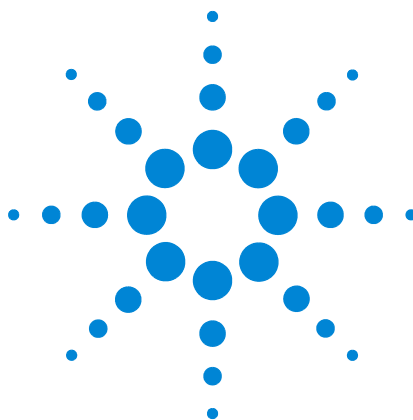
Safety Notices

CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

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A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.



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About the Gas Clean Filter System

The Agilent Gas Clean Filter system delivers high purity gases to your analytical instruments, reducing the risk of column damage, sensitivity loss, and instrument downtime. The filters are designed for use with the GC, GC/MS, ICP-OES, ICP-MS, LC/MS, and any other analysis instrument using carrier gas. Six filters are available, including CO₂, oxygen, moisture, and organics trap (charcoal).

Components

The Gas Clean Filter System consists of a connecting unit and filter (Figure 1). The connecting unit is equipped with inlet and outlet connectors for the gas lines, and two needle-like valves that automatically start the flow of gas once a filter is attached. The filters are made from a heavy-walled polycarbonate sealed at the base with PTFE. When installed onto the connecting unit, the needle-like valves puncture the PTFE seals and allow gas to flow through the filter.



Figure 1 The components of the Gas Clean Filter System

Features

The Gas Clean Filter System delivers the following features and benefits:

- Cleaner gas, longer instrument life, greater sensitivity, higher data accuracy, and overall long-term stability for your instruments and analyses.
- A high-flow connecting unit that handles flow rates up to 20 L/min for collision gas applications and supply gas for ICP-MS, ICP-OES, and LC-MS.
- A fast-stabilizing and absorbent filter material.
- Filter housing constructed with a transparent and virtually unbreakable, heavy-walled polycarbonate material.
- The ability to change the Gas Clean Filter without tools or gas shut-off.

Filter types

Each Gas Clean Filter type is designed to filter out a specific impurity that may exist in the gas supply. The following filter types are available:

- **Carbon Dioxide** - Eliminates CO₂ from supply gas to the Total Organic Carbon (TOC) analyzer, and improves sensitivity and accuracy in TOC analysis.
- **Oxygen** - Prevents oxidation of the GC column, septum, liner, and glass wool.
- **Moisture** - Delivers faster stabilization times for increased GC productivity, and prevents hydrolyzation damage to the stationary phase, column, liner, glass wool, or septum in the GC.
- **Process Moisture** - Prevents oxidation of GC components and is safe to use with acetylene in process GC applications.
- **Charcoal** - Removes organic compounds and ensures correct performance of FID detectors in the GC.
- **GC/MS** - Delivers faster stabilization times for increased GC productivity, removes oxygen, moisture, and hydrocarbons from the carrier gas for MS applications, and provides ultimate GC column protection.

Table 1 on page 6 shows recommended filter connection diagrams for common instrument configurations.

Table 1 Connection diagrams for common detectors

Detector	Connection Diagram
ECD Electron Capture Detector	<pre> graph LR CG[Carrier Gas] --> OF1[Oxygen Filter] OF1 --> MF1[Moisture Filter] MF1 --> C[Column] N2[Nitrogen] --> OF2[Oxygen Filter] OF2 --> MF2[Moisture Filter] MF2 --> APG[Anode Purge Gas] MF2 --> MG[Make-Up Gas] APG --> ECD[ECD] MG --> ECD C --> ECD </pre>
FID Flame Ionization Detector (Carrier Gas = Make-Up Gas)	<pre> graph LR CG[Carrier Gas] --> OF[Oxygen Filter] OF --> MF[Moisture Filter] MF --> C[Column] H2[Hydrogen] --> CF1[Charcoal Filter] Air[Air] --> CF2[Charcoal Filter] C --> FID[FID] CF1 --> FID CF2 --> FID </pre>
FID Flame Ionization Detector (Carrier Gas differs from Make-Up Gas)	<pre> graph LR CG[Carrier Gas] --> GCMF[GC/MS Filter] GCMF --> C[Column] MG[Make-Up Gas] --> CF1[Charcoal Filter] H2[Hydrogen] --> CF2[Charcoal Filter] Air[Air] --> CF3[Charcoal Filter] C --> FID[FID] CF1 --> FID CF2 --> FID CF3 --> FID </pre>
FPD Flame Photometric Detector PFPD Pulsed Flame Photometric Detector	<pre> graph LR CG[Carrier Gas] --> OF[Oxygen Filter] OF --> MF[Moisture Filter] MF --> C[Column] H2[Hydrogen] --> CF1[Charcoal Filter] Air[Air] --> CF2[Charcoal Filter] C --> FPD[FPD] CF1 --> FPD CF2 --> FPD FPD --> F1[Flame 1] FPD --> F2[Flame 2] </pre>

Table 1 Connection diagrams for common detectors (continued)

Detector	Connection Diagram
MS (ITD, MSD) Ion Trap Detector, Mass Selective Detector	<pre> graph LR CG1[Carrier Gas] --> GCMF[GC/MS Filter] GCMF --> C1[Column] C1 --> MS1[MS] CG2[Carrier Gas] --> OF1[Oxygen Filter] OF1 --> MF1[Moisture Filter] MF1 --> C2[Column] C2 --> MS2[MS] </pre>
NPD, PND Nitrogen-Phosphorous Detector TID, TSD Thermionic Detector (Carrier Gas = Make-Up Gas)	<pre> graph LR CG[Carrier Gas] --> OF[Oxygen Filter] OF --> MF[Moisture Filter] MF --> C[Column] C --> TSD[TSD] MG[Make-Up Gas] --> TSD H[Hydrogen] --> CF1[Charcoal Filter] A[Air] --> CF2[Charcoal Filter] CF1 --> TSD CF2 --> TSD </pre>
TCD Thermal Conductivity Detector	<pre> graph LR CG[Carrier Gas] --> OF[Oxygen Filter] OF --> MF[Moisture Filter] MF --> C[Column] C --> TCD[TCD] MF -.-> Reference Channel TCD MG[Make-Up Gas, if necessary] -.-> TCD </pre>

Table 1 Connection diagrams for common detectors (continued)

Detector	Connection Diagram
ICP-OES/ICP-MS Inductive Coupled Plasma-Optical Emission Spectrometry/-Mass Spectrometry (Plasma Gas = Nebulizer Gas)	<pre> graph LR SG[Supply Gas] --> OF1[Oxygen Filter] SG --> OF2[Oxygen Filter] OF1 --> D[ICP-MS ICP-OES] OF2 --> D </pre>
ICP-OES Inductive Coupled Plasma-Optical Emission (Different Optic Flush Gas)	<pre> graph LR SG[Supply Gas] --> OF1[Oxygen Filter] SG --> OF2[Oxygen Filter] OF1 --> D[ICP-OES] OF2 --> D OFG[Optic Flush Gas] --> OF3[Oxygen Filter] OF3 --> D subgraph HFBP [High-Flow Base Plate] OF1 OF2 end </pre>
Total Organic Carbon (TOC) Analyzer	<pre> graph LR CG[Carrier Gas] --> CF[CO2 Filter] CF --> MF[Moisture Filter] MF --> TA[TOC Analyzer] </pre>
Zero-Air Generator	<pre> graph LR CG[Carrier Gas] --> CF[CO2 Filter] CF --> MF[Moisture Filter] MF --> ZAG[Zero-Air Generator] </pre>
LC/MS Mass Spectrometry	<pre> graph LR SG[Supply Gas] --> MF1[Moisture Filter] SG --> MF2[Moisture Filter] MF1 --> D[LC/MS] MF2 --> D subgraph HFBP [High-Flow Base Plate] MF1 MF2 end </pre>

Contact your local Agilent sales representative for the filter sets applicable to your instrument configuration.

Safety Information

General gas safety

- Wear eye protection when using compressed gas to avoid eye injury.
- Fasten all compressed gas cylinders securely to an immovable structure or permanent wall.
- Store and handle compressed gases in accordance with relevant safety codes.
- Do not put gas cylinders in the path of a hot air vent (including a GC oven exhaust).
- Perform periodic leak checks on supply lines, fittings, and pneumatic plumbing to prevent a potentially hazardous condition.

Cleaning

Wipe away dust and residue using a lint-free cloth.

Once the filter is consumed, the filter and filter material cannot be replenished or reused.

Recycling the product

When filters are replaced, they must be treated as chemical waste and disposed of according to local policy.

Installation

Before you begin

Be sure to choose a centralized installation location where all instruments are easily reachable and where the filter's indicating material is always visible.

Gas Clean Filter connecting units are available for both 1/4-inch and 1/8-inch gas lines. Be sure you have selected the appropriate connecting unit to use with your lab setup.

Prepare your instrument

Prepare your instrument by doing the following:

- 1 Lower any heated zone temperatures on your instrument to less than 100 °C.
- 2 Set any purge flows on your instrument to 400 mL/min.
- 3 If your system pressure is higher than 7 bar (100 psi), reduce the pressure.

Install the connecting unit

The connecting unit can be mounted on a laboratory benchtop, affixed to the wall (with optional wall-mounting bracket for the single filter connecting unit), or attached to the top of the instrument.

Installing on a laboratory bench top

You can install the connecting unit onto the laboratory bench top using optional hook and loop adhesive fabric strips or with two screws (not supplied). This section describes how to mount your connecting unit to a laboratory bench top using screws. If you wish to use the hook and loop fabric strips, refer to the steps in the section [“Installing to an instrument top”](#) on page 19.

Gather the following:

- Screws (2), at least 25 mm long and less than 5-mm od (not supplied)
- Screw driver or power drill

To install the connecting unit to the laboratory bench top:

- 1 Remove the two black plastic caps by pushing a thin, narrow object (such as a paper clip) from the bottom of the connecting unit into the underside of the caps until they pop out ([Figure 2](#)).



Figure 2 Removing the plastic caps from the connecting unit

- 2 Determine the best location on your laboratory bench top to install the connecting unit and filter.
 - Make sure the filter's indicator is clearly visible so that exhausted filters can be easily identified.
 - Make sure you have ample space above the bench top and connecting unit for installation and removal of the filter.
 - Make sure the gas lines reach the location and will not interfere with other activities in the chosen installation location.
 - Check that the mounting screws will not penetrate any dangerous objects such as gas and power lines.
- 3 Place the connecting unit in the chosen location, and use a screw driver or power drill to install the screws into the bench top through the two openings on the top of the connecting unit.
- 4 Replace the black plastic caps on the connecting unit to cover the two screw hole openings.

Installing on a wall

This option is only available for a single filter connecting unit using the optional wall mounting bracket.

Gather the following:

- Wall mounting bracket kit (CP7981)
- Flathead screw driver
- Hex wrench (4 mm)
- Power drill with 5-mm od drill bit
- Pencil

To install the wall mounting bracket:

- 1 Determine the location on the wall where you wish to install the wall mounting bracket.
 - Make sure you have ample space above the mounting bracket with connecting unit installed for installation/removal of the filter.
 - Make sure the gas lines reach the location and will not interfere with other activities in the chosen installation location.
 - Check that the mounting screws will not penetrate any dangerous objects such as gas and power lines once installed.

- 2 Hold the wall mounting bracket against the wall in the location that you plan to install it, and use a pencil to mark the drilling location for the screw holes (Figure 3).

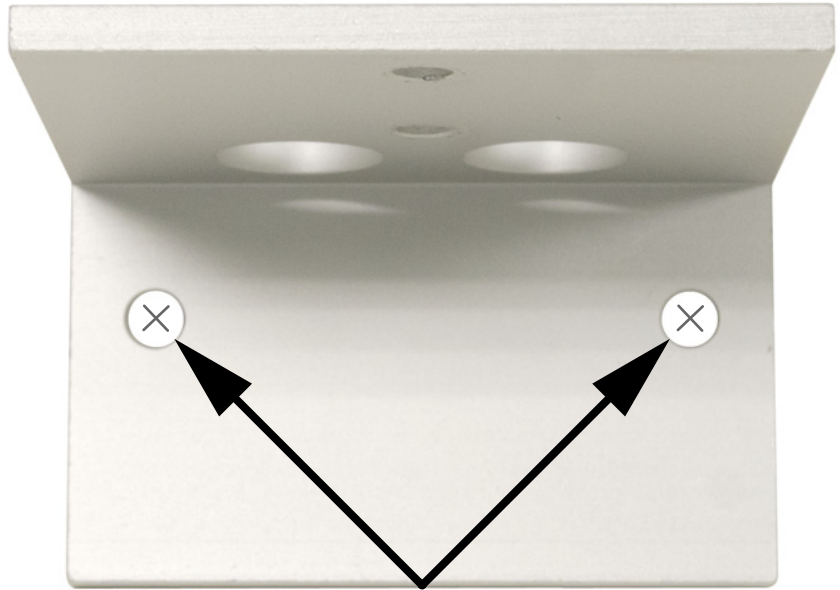


Figure 3 Mark the drilling locations on the wall using the screw holes in the wall mounting bracket as a guide

Lay the mounting bracket down on a flat surface.

- 3 Using a power drill with a 5-mm od drill bit, drill about 5 cm into the wall in both locations. Wipe away any excess dust and residue.
- 4 If required, install the supplied drywall anchors into the drilled holes, and make sure each anchor is flush against the wall's edge (Figure 4).

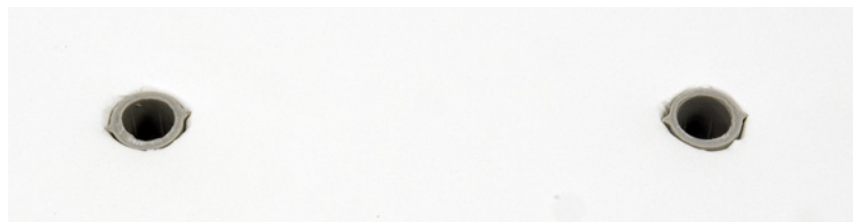


Figure 4 Plastic drywall anchors installed in wall

- 5 Hold the wall mounting bracket in place against the wall using one hand, then use your other hand to install each screw into the wall (or drywall anchor, [Figure 5](#)). Finger tighten the screws as far as possible, and then use a screwdriver to complete the screw installation. The wall mounting bracket should rest flush against the wall.



Figure 5 Installing the wall mounting bracket

- 6 The connecting unit supports gas connections on the base plate edge for surface mounting and from below when mounting the connecting unit against a wall. The connecting unit ships from the factory with the gas connections installed on the edge for surface mounting. For wall mounting, you can optionally change the gas inlet-outlet locations to the bottom as follows:
 - a Using a 5-mm hex wrench, remove the two plugs on the underside of the connecting unit (Figure 6).

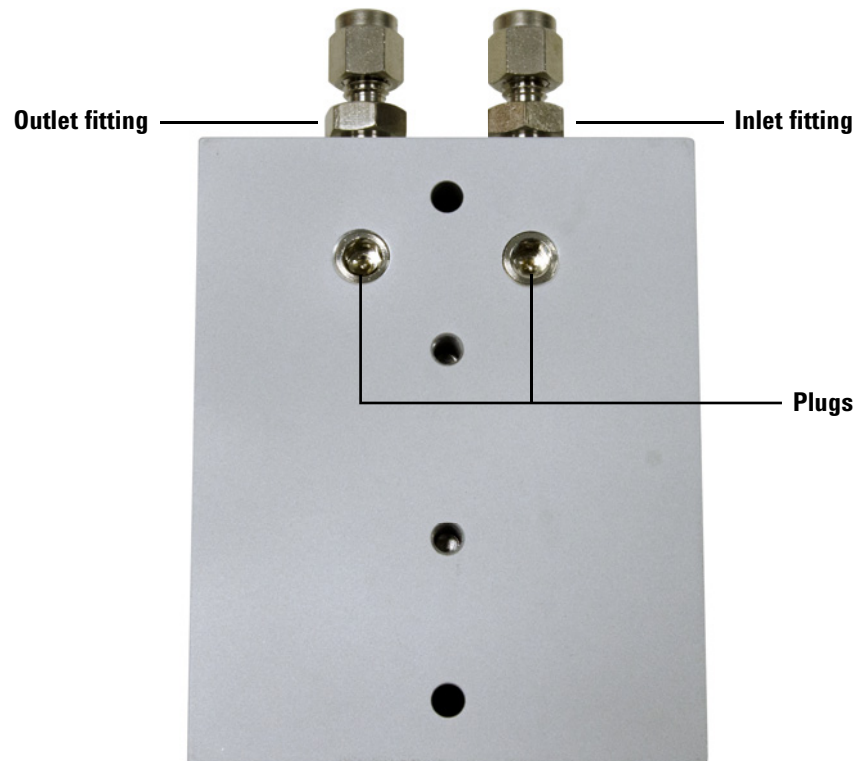


Figure 6 Plugs and inlet/outlet fittings on the connecting unit

- b Using a 1/2-inch wrench, remove the inlet and outlet fittings on the end of the connecting unit (Figure 6).

- c Install the plugs on the end of the connecting unit using a 5-mm hex wrench (Figure 7).

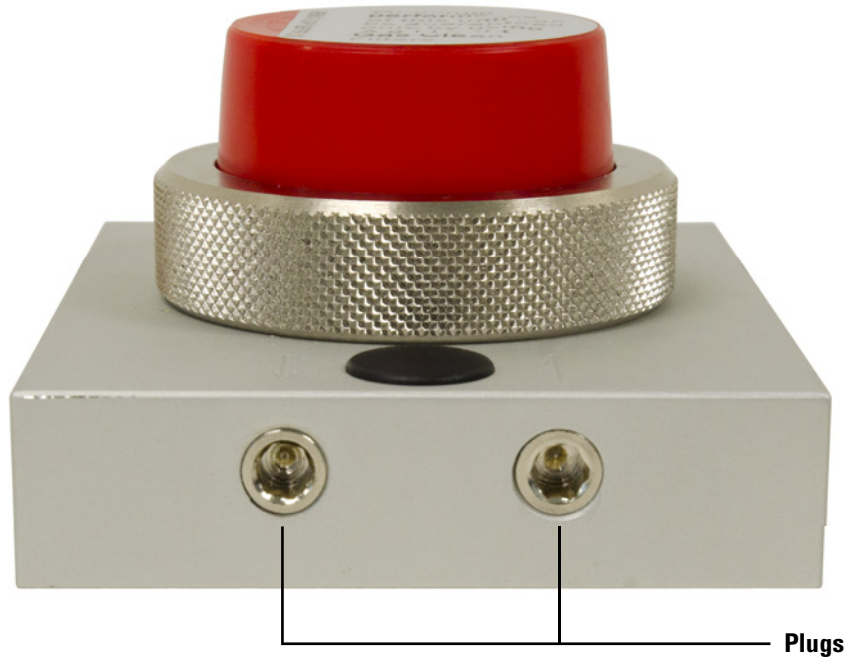


Figure 7 Plugs installed on the end of the connecting unit

- d Install the inlet and outlet fittings on the underside of the connecting unit using a 1/2-inch wrench (Figure 8).



Figure 8 Inlet and outlet fittings installed on the underside of the connecting unit

- 7 Install the connecting unit to the wall mounting bracket.
 - a Depending on the inlet/outlet fitting orientation on the connecting unit, align the connecting unit to the bracket as shown in [Figure 9](#).

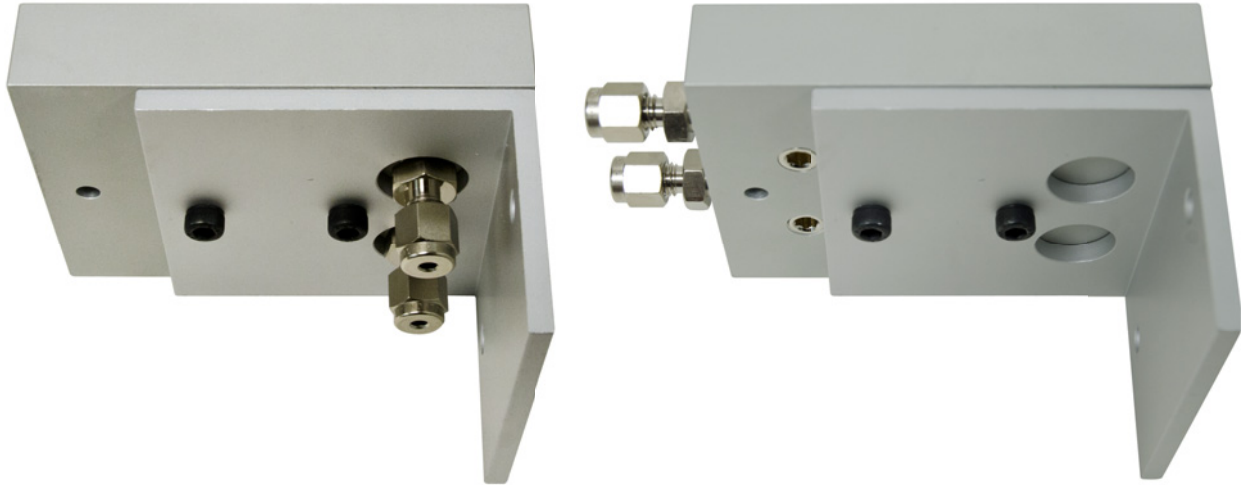


Figure 9 Connecting unit orientations on wall mounting bracket

- b Using your hand, install the hex screws from the bottom-up until they are finger tight ([Figure 10](#)).

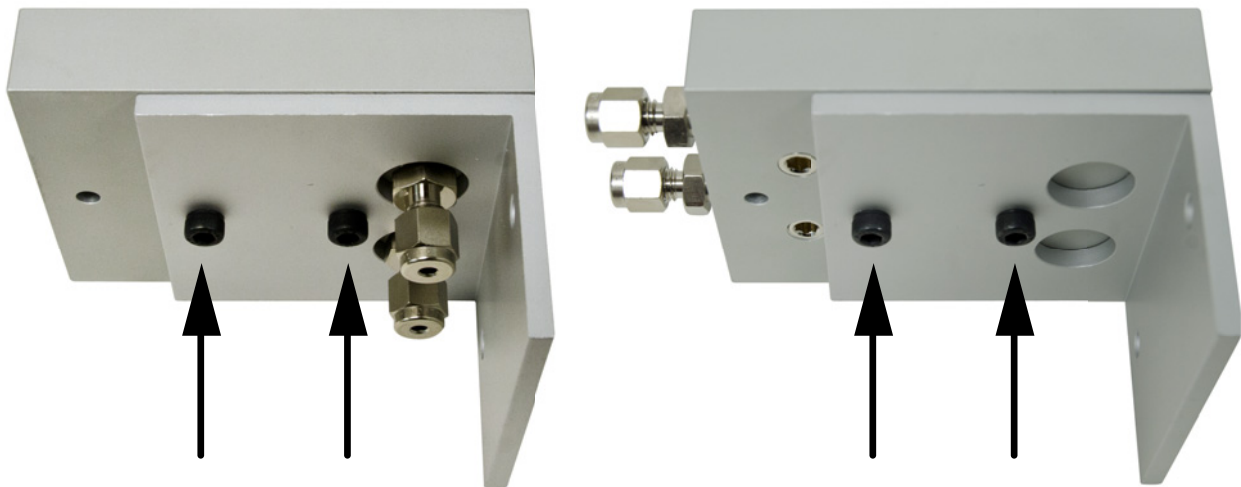


Figure 10 Hex screws installed

- c Use a 4-mm hex wrench to tighten the screws. The connecting unit should be tight against the wall mounting bracket.

Installing to an instrument top

Gather the following:

- Hook and loop fabric strips (5066-1110)

To install the connecting unit to the top of an instrument:

- 1 Peel the paper adhesive cover from one side of each fabric strip and apply the exposed adhesive to the underside of the connecting unit as shown in [Figure 11](#).

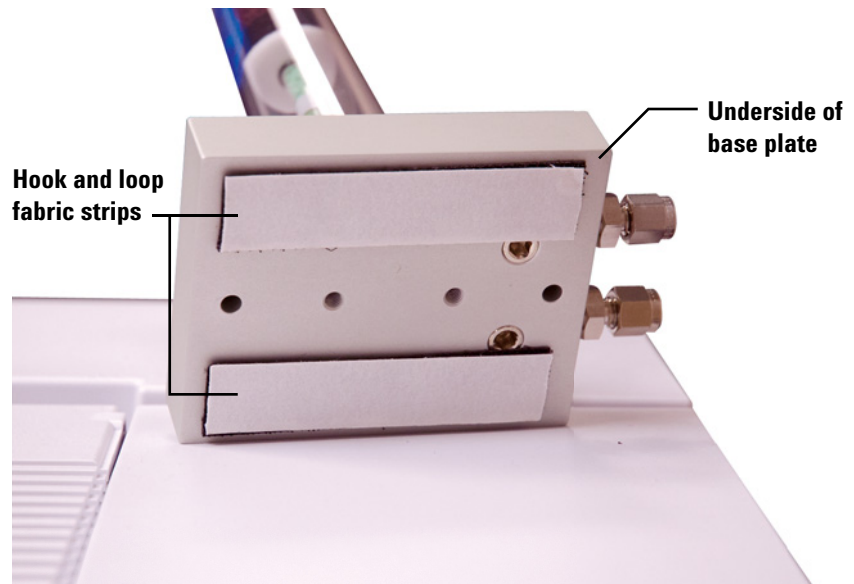


Figure 11 Hook and loop fabric strips attached to the underside of the connecting unit

- 2 Peel and remove the paper adhesive covers from the bottom of the hook and loop fabric strips (Figure 12).

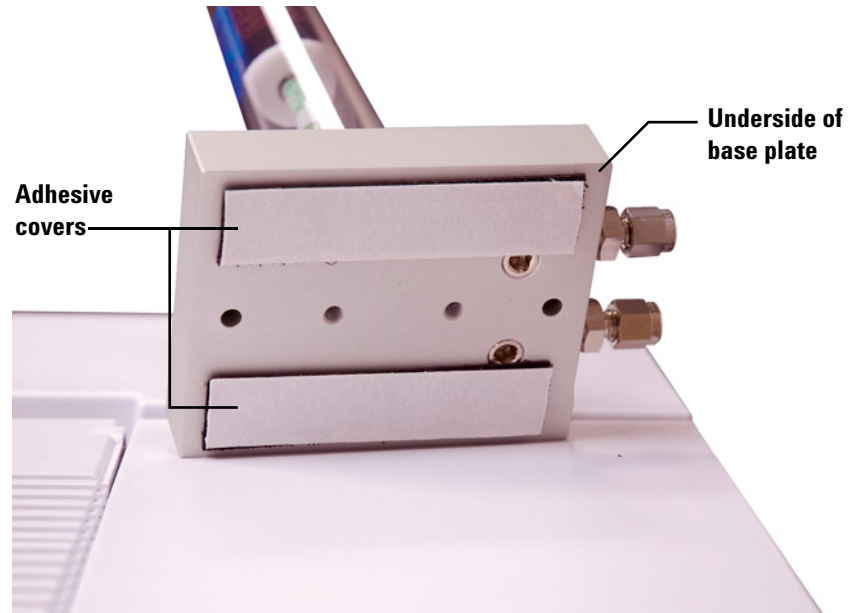


Figure 12 Peel and remove the adhesive covers from the bottom of the hook and loop fabric strips

CAUTION

Be sure to not cover any vents or heated areas on the instrument surface.

- 3 Place the connecting unit onto your instrument. Press firmly down so the adhesive sets properly on both the connecting unit and instrument surface (Figure 13).

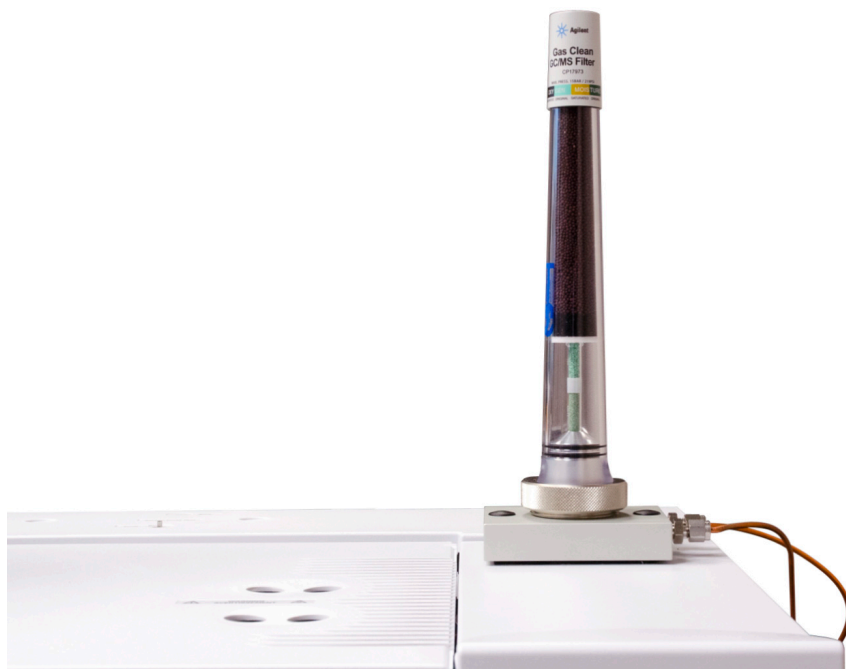


Figure 13 Filter base attached to the top of instrument using the supplied hook and loop fabric strips

Connect the gas lines

Before starting, make sure you have enough gas line tubing to reach the area where you wish to mount the Gas Clean Filter. For best results, use pre-cleaned gas lines.

Gather the following:

- Swagelok nuts (included with the connecting unit assembly)
- Front and back ferrules (included with the connecting unit assembly)
- Wrench, 7/16-inch (for 1/8-inch nuts) or 9/16-inch (for 1/4-inch nuts)
- Pre-cleaned tubing
- Electronic leak detector, such as the Agilent G3388B Handheld Electronic Gas Leak Detector

To connect the gas lines to the connecting unit:

- 1 Place a Swagelok nut, back ferrule, and front ferrule to the tubing as shown in [Figure 14](#).

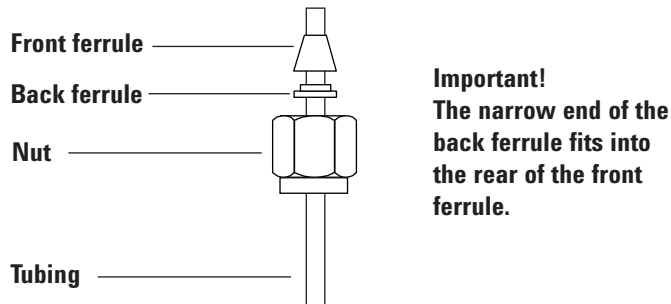


Figure 14 Swagelok nuts and ferrules

- 2 Push the tubing towards the base until it rests firmly against the shoulder in the fitting, and make sure that the front ferrule is touching the fitting. Slide the Swagelok nut over the ferrule and thread it onto the fitting (Figure 15).

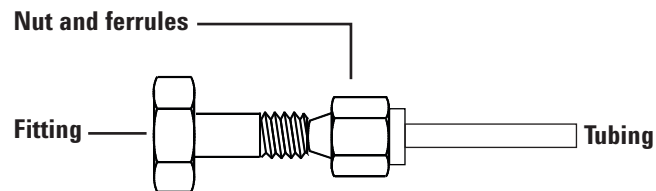


Figure 15 Assemble the fitting

- 3 Push the tube fully into the fitting, then withdraw it approximately 1 to 2 mm (see Figure 16).

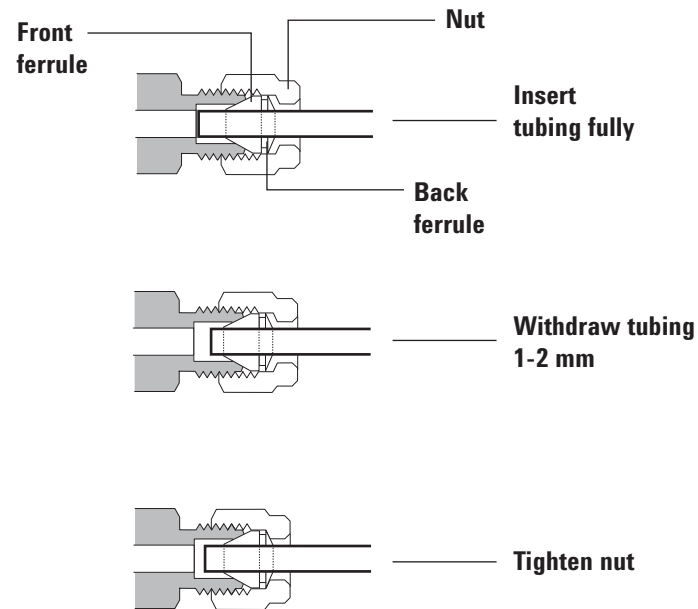


Figure 16 Insert the tubing

- 4 Finger-tighten the nut. Then use a wrench to tighten the nut 3/4 turn (for 1/8-inch tubing).
- 5 Set the gas line pressure to a value between 2 bar (30 psi) and 4 bar (60 psi) when installing the filter to the connecting unit. Be sure to keep the pressure above 2 bar (30 psi) so that air does not enter the filter.

6 Check all connections for leaks using the leak detector.

Figure 17 shows gas lines connected to the filter connecting unit.

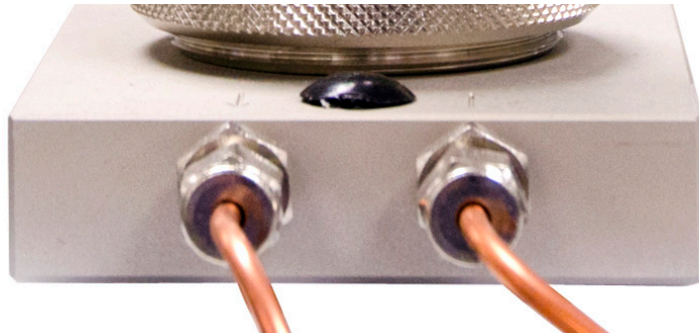


Figure 17 Properly-connected gas lines (single connecting unit shown)

Install the filter

CAUTION

Wear clean, lint-free gloves to prevent contamination of parts with dirt and skin oils.

To install the filter on the connecting unit:

- 1 Unscrew the knurled ring and remove the red plastic dust cap from the top of the connecting unit (Figure 18).

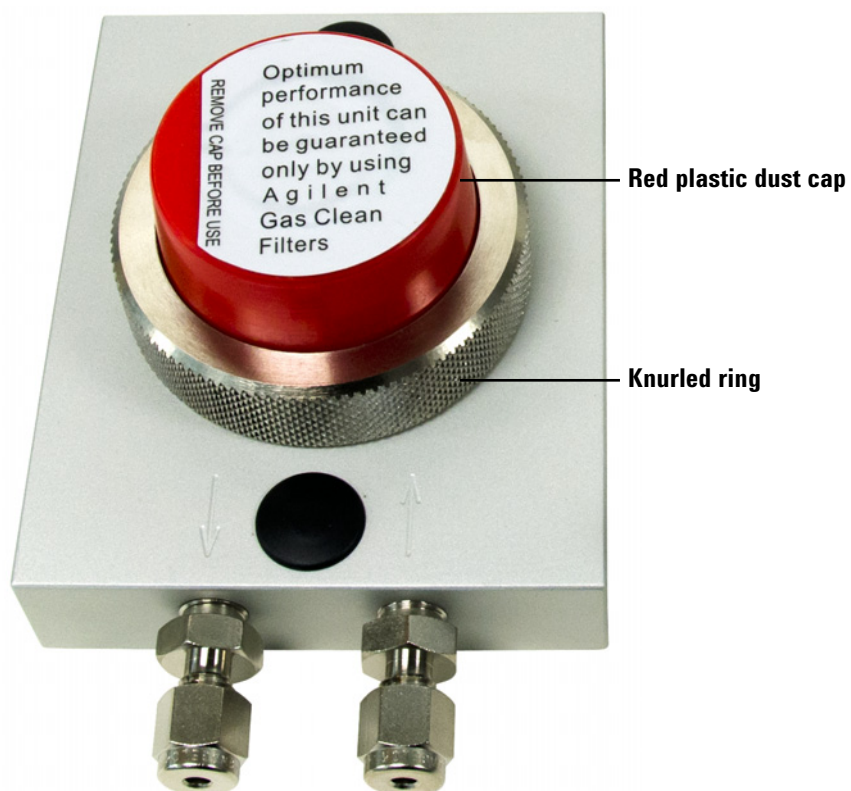


Figure 18 Remove the red plastic dust cap

2 Flush the gas line of oxygen and moisture.

If available, use the optional flush head (part number CP7987) to flush the gas line (Figure 19). Place the flush head over the valves and alignment pin and push down until it rests on the base of the connecting unit. Install the knurled ring to hold it in place.



Figure 19 Using the flush head to flush the gas line of oxygen and moisture

If you do not have the flush head, use a small object or your finger to depress the inlet valve. (The inlet valve has an O-ring positioned at the top of the cylinder, as shown in Figure 20.)

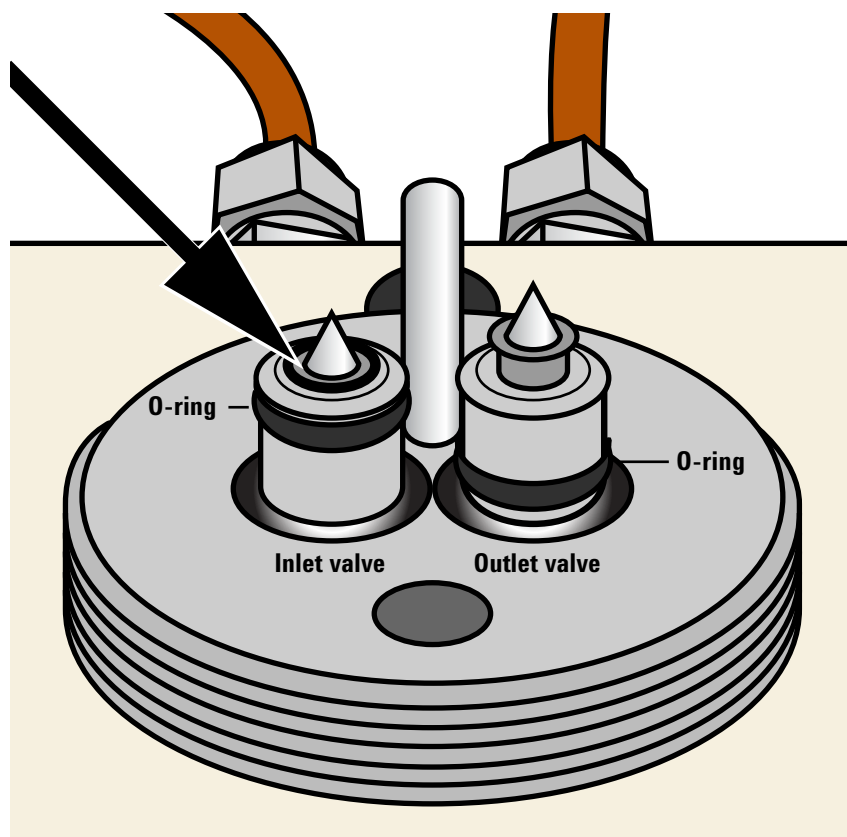


Figure 20 Depress the inlet valve to flush the gas line of oxygen and moisture

Flush the gas lines for at least several minutes to ensure the gas lines are free of oxygen and moisture.

- 3 Remove the filter from the packaging, then remove the two aluminum plugs from the bottom of the filter (Figure 21).



Figure 21 Remove the aluminum plugs from the filter

- 4 Place the knurled ring over the filter, then place the filter on top of the connecting unit (it will only fit one way due to the alignment pin shown in Figure 22). Be careful to not damage the connecting unit and filter components by forcing an incorrect filter orientation.



Figure 22 Alignment pin

- 5 Tighten the knurled ring while gently pressing down on the filter. Let the knurled ring pull the filter onto the connecting unit as it is tightened (Figure 23).

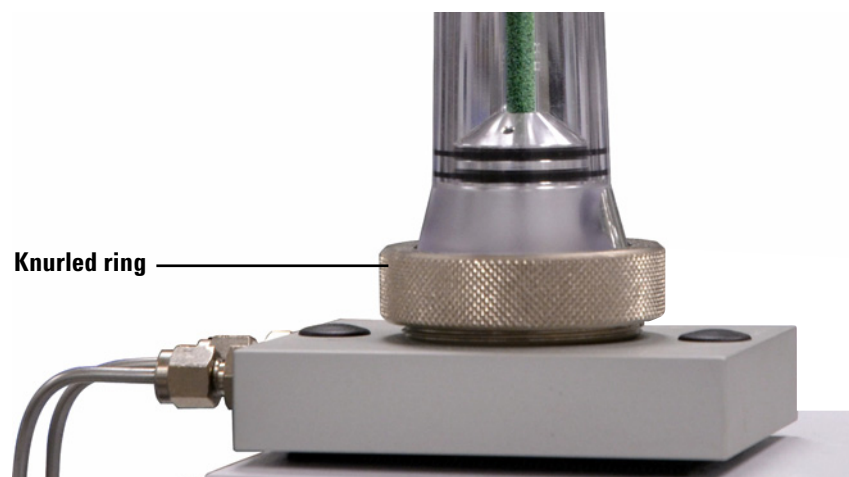


Figure 23 Tighten the knurled ring to secure the filter to the connecting unit

- 6 Allow the filter to pressurize for 3 minutes.
- 7 Flush the filter. Set the instrument split vent flow (purge flow) to 400 mL/min, then:
 - If using a Moisture filter in combination with an MS detector, purge for at least 60 minutes. This will flush the filter of dry nitrogen so that it does not appear as a background ion in your MS analysis.
 - For all other filter and detector combinations, purge for 4 minutes.
- 8 Restore to normal operating supply pressure and method settings. (Remember to keep at a minimum supply pressure of 2 bar (30 psi).)

Install a two- or four-position connecting unit

The steps for installing a two- or four-position connecting unit are similar to the steps for the single-filter connecting unit. Refer to the previous sections in this chapter for details (“[Installation](#)” on page 10).

Two-position connecting unit

When installing the two-position connecting unit, refer to [Figure 24](#) for gas line and filter installation locations.

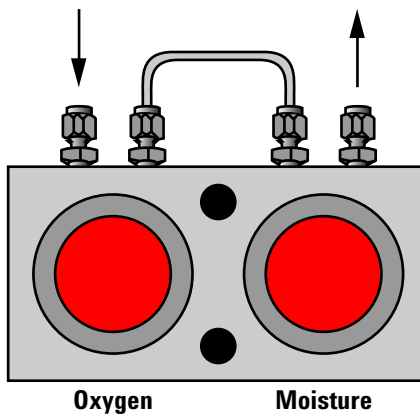


Figure 24 Two-position connecting unit

Four-position connecting unit

When installing the four-position connecting unit, refer to [Figure 25](#) and [Figure 26](#) for common gas line and filter configurations.

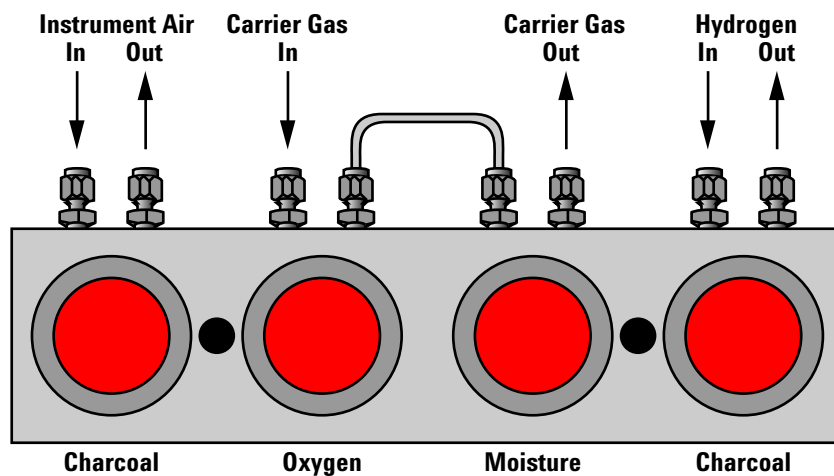


Figure 25 Configuration 1: Four-position connecting unit

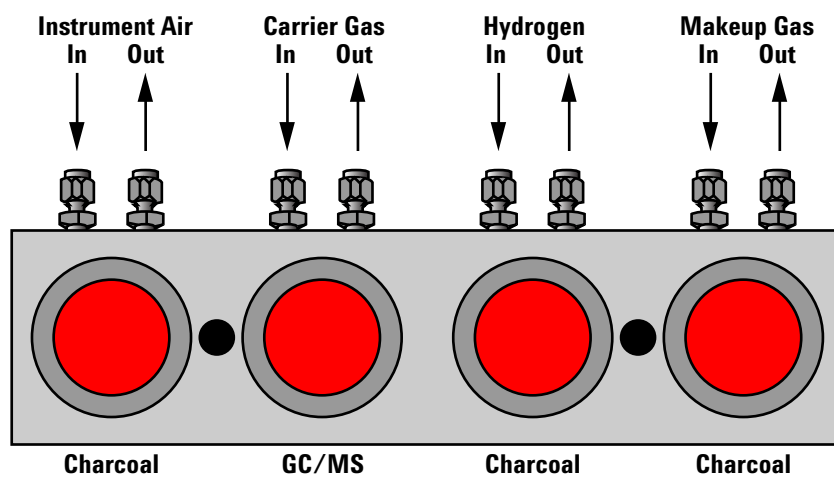


Figure 26 Configuration 2: Four-position connecting unit

Gas Flow in a Gas Clean Filter

Gas flows in an upward direction from the bottom of the filter to the top, and then downward through the filter material, indicating material, and out the bottom of the filter (see [Figure 27](#)).

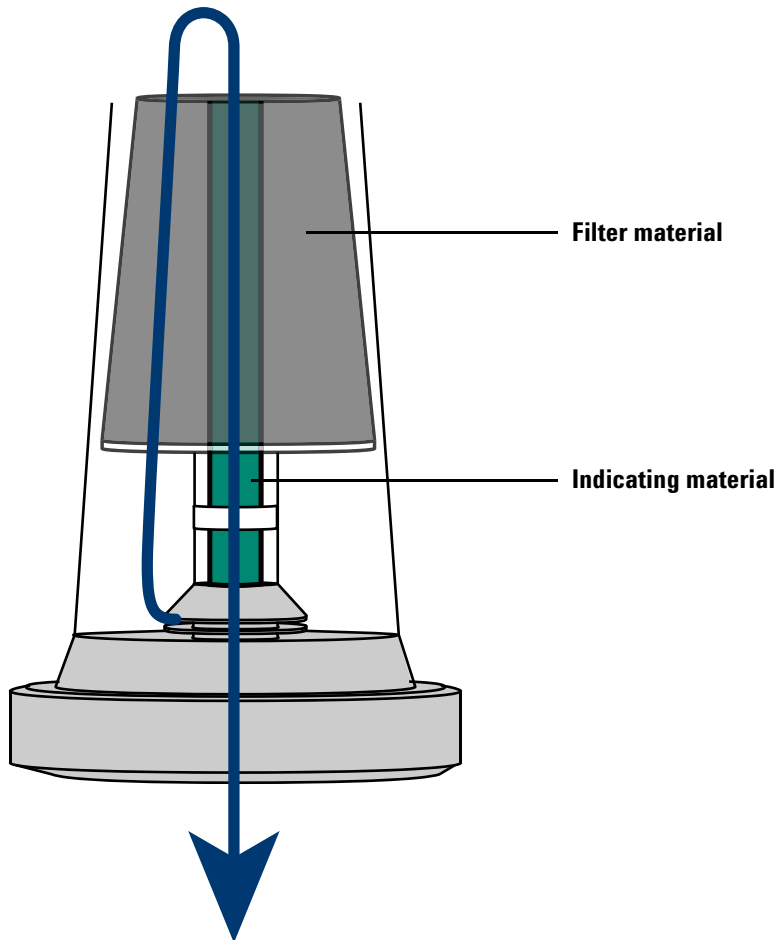


Figure 27 Flow of gas through the Gas Clean Filter

Replacing the Gas Clean Filter

When to replace the Gas Clean Filter

As gas passes through the filter material, the filter picks up impurities and eventually becomes consumed over time. When this occurs, an increased amount of impurities reach the indicating material, which causes the material to change color from the top-down.

When 75% or more of the indicating material's color has changed, this indicates that the filter is consumed (see [Figure 28](#)).

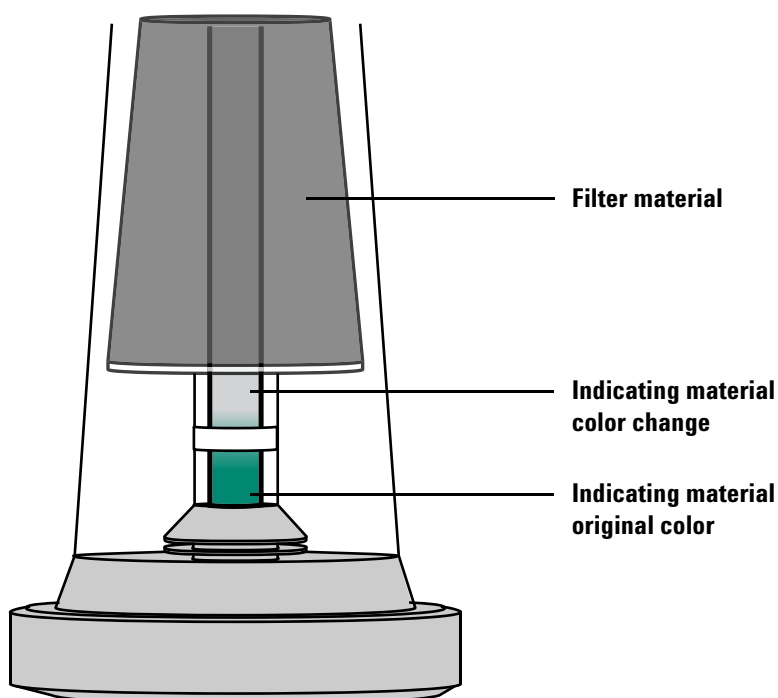


Figure 28 Indicating material color change

Agilent recommends replacing the filter when 75% or more of the indicator's color has changed (from the top down) or within one year of installation.

The indicator color and consumed indicator colors are different for each type of filter. See [Table 2](#) for a description of each filter indicator color and consumed color change.

Table 2 Indicating material color description

Filter type	Original color	Consumed color
Oxygen Filter	Green	Gray
Moisture Filter/ Process Moisture Filter	Green	Pale brown
Charcoal Filter	No indicator	No indicator
GC/MS Filter	Oxygen: Green Moisture: Green	Gray Pale brown
CO ₂ Filter	White	Violet

See “[To replace the Gas Clean Filter](#)” on page 35 for more information.

To replace the Gas Clean Filter

To replace the Gas Clean Filter:

- 1 Lower any heated zone temperatures on your instrument to less than 100 °C.
- 2 Set any split vent flows (purge flows) on your instrument to 400 mL/min.
- 3 If your system pressure is higher than 7 bar (100 psi), reduce the pressure to a pressure no lower than 2 bar (30 psi) to ensure easy removal of the saturated filter.
- 4 Remove the saturated filter by unscrewing the knurled ring that secures the filter to the connecting unit (Figure 27).



Figure 29 Unscrew the knurled ring

- 5 Remove the new filter and O-rings from the packaging.

- 6 Remove the old upper set of O-rings using the supplied tool and replace with new O-rings (Figure 30).

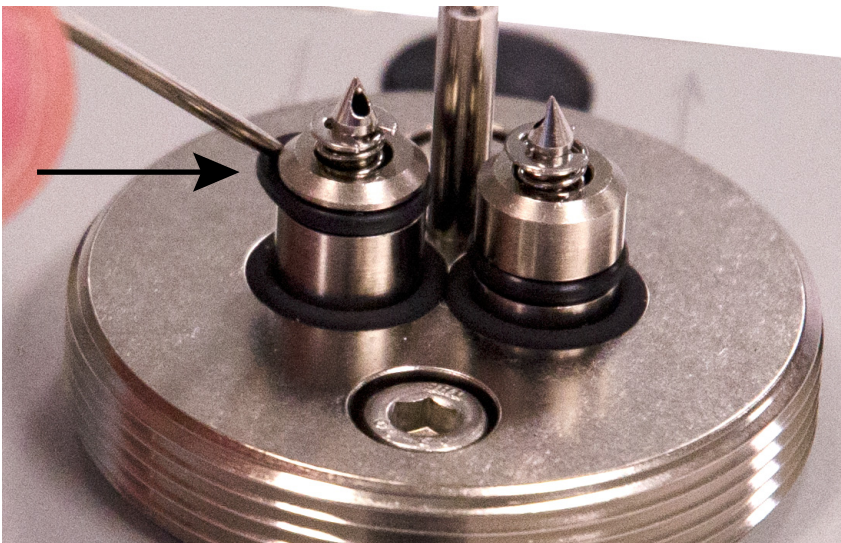


Figure 30 Remove upper pair O-rings only when replacing filter

- 7 Remove the two aluminum plugs from the bottom of the new filter (Figure 31).



Figure 31 Aluminum plugs removed from bottom of the new filter

- 8 Place the knurled ring over the filter, then put the filter on top of the connecting unit (it will only fit one way due to the alignment pin).
- 9 Tighten the knurled ring while gently pressing down on the filter; let the ring pull the filter onto the connecting unit.
- 10 Carefully check the connections for leaks. See “[Checking for Leaks](#)” on page 37 for more information.

Treat used filters as chemical waste and dispose of them according to local policy.

Checking for Leaks

During leak-free operation, the filter indicator should not change color for several months, depending on the quality of your gas.

If you notice a color change in your filter's indicating material immediately following installation, this indicates a gas leak in your system, or poor gas quality. Take note whether the color change occurred from the top down or from the bottom up, and refer to one of the following sections:

- “Indicator changes color from the top down” on page 37
- “Indicator changes color from the bottom up” on page 38

Indicator changes color from the top down

If the indicating material changed color from the top down (see [Figure 32](#)), there is a leak upstream of the filter in your gas line, or your gas quality is poor. Check for leaks at the cylinder, regulator, and fittings, and check your gas quality.

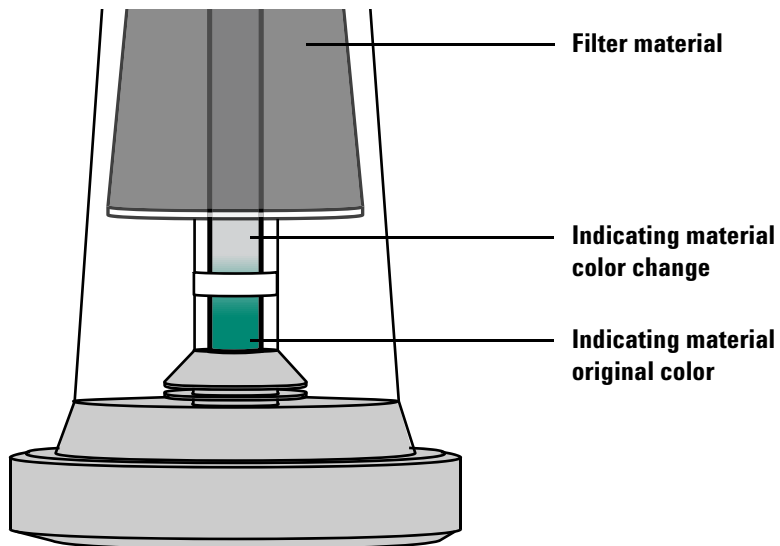


Figure 32 Indicating a leak upstream from the filter

CAUTION

When about 75% of the indicator changes color from the top down, this indicates that the entire filter is consumed and needs to be replaced.

Indicator changes color from the bottom up

If your filter's indicator changes color from the bottom up shortly after installation (see [Figure 33](#)), this indicates a leak downstream of the filter in your gas line. Check for leaks between the filter and your instrument.

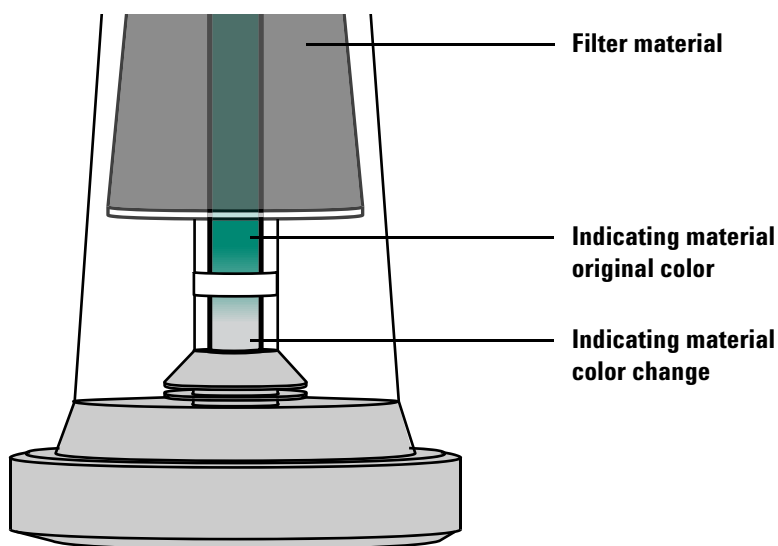


Figure 33 Indicating a leak downstream from the filter

If the entire indicator has not changed color (from the bottom up), the filter is not consumed and is still usable (see [Figure 33](#)).

Replacement Parts

Table 3 Agilent Gas Clean Filter Starter Kits

Description	Part No.
Agilent Gas Clean FID Filter kit Includes a 4-position 1/8 in connecting unit and two Charcoal filters, one Oxygen filter, and one Moisture filter	CP7995
Gas Clean Filter Kit, 1/8 in Includes a 4-position 1/4 in connecting unit and two Charcoal filters, one Oxygen filter, and one Moisture filter	CP736530
Agilent Gas Clean GC/MS Filter kit, 1/8 in Includes a 1-position connecting unit 1/8 in and two GC/MS filters	CP17976
Agilent Gas Clean GC/MS Filter kit, 1/4 in Includes a 1-position connecting unit 1/4 in and two GC/MS filters	CP17977
Agilent Gas Clean GC/MS Filter Installation kit Includes 1 m copper tubing (part no. CP17976), two nuts and two ferrules, 1/8 in	CP17978
Agilent Gas Clean CO ₂ kit Includes 2-position 1/4 in connecting unit and CO ₂ and moisture filters	CP17982
Agilent Gas Clean CO ₂ kit Includes 2-position 1/8 in connecting unit and CO ₂ and moisture filters	CP17983
TCD Filter Kit Includes a 2-position 1/8 in connecting unit, one Oxygen filter, and one Moisture filter	CP738408
GC Installation Kit Includes CP736530 and many useful fittings and accessories	19199N

Table 4 Connecting Units

Description	Part No.
1-position connecting unit, 1/4 in	CP7980
1-position connecting unit, 1/8 in	CP7988
2-position connecting unit, 1/4 in	CP738406
2-position connecting unit, 1/8 in	CP738407
4-position connecting unit, 1/4 in	CP7989
4-position connecting unit, 1/8 in	CP736520
High flow connecting unit, 1/4 in	CP17984
High flow connecting unit 1/8 in	CP17985
1-position stainless steel connecting unit, 1/4 in	CP7980P4
1-position stainless steel connecting unit, 1/8 in	CP7988P8
1-position stainless steel connecting unit, 3 mm	CP7988P3
1-position stainless steel connecting unit, 6 mm	CP7980P6

Table 5 Replacement Gas Clean Filters

Gas Clean Filters	Part No.
Agilent Gas Clean CO ₂ Filter	CP17969
Agilent Gas Clean Oxygen Filter	CP17970
Agilent Gas Clean Moisture Filter	CP17971
Agilent Gas Clean Process Moisture Filter	CP17971P
Agilent Gas Clean Charcoal Filter	CP17972
Agilent Gas Clean Filter GC-MS	CP17973

Table 6 Accessories and Fittings

Gas Clean Filters	Part No.
Wall mounting bracket for connecting unit For CP7980 and CP7988	CP7981
Upper part filter connecting unit	CP7978
Flush head for connecting unit	CP7987
Male connector, 1/4 in with dust filter	CP7986
Male connector, 1/8 in.with dust filter	CP82117
O-rings, two sets	CP7983
Male connector, stainless steel, 1/4 in with dust filter	CP7986SS
Male connector, stainless steel, 1/8 in with dust filter	CP82117SS
Male connector, stainless steel, 3 mm with dust filter	CP82117SS3
Male connector, stainless steel, 6 mm with dust filter	CP7986SS6

